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EXAMINER
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* PAUL W. CROTTY JR.

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Appeal 2016-002657  
Application 13/197,459  
Technology Center 2800

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Before BEVERLY A. FRANKLIN, ELIZABETH M. ROESEL, and  
AVELYN M. ROSS, *Administrative Patent Judges*.

ROESEL, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant<sup>1</sup> appeals under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 1–25. We have jurisdiction under 35 U.S.C. § 6(b).<sup>2</sup>

We AFFIRM.

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<sup>1</sup> Laird Technologies, Inc. is identified as the real party in interest. App. Br. 3.

<sup>2</sup> In our opinion below, we reference the Specification filed August 3, 2011 (Spec.), the Final Office Action mailed January 15, 2015 (Final Action), the Appeal Brief filed June 12, 2015 (App. Br.), and the Examiner's Answer mailed September 17, 2015 (Ans.).

## STATEMENT OF THE CASE

### *Claimed Invention*

The claimed subject matter relates to a shielding apparatus suitable for shielding components on a printed circuit board from electromagnetic interference (EMI) and/or radio frequency interference (RFI). App. Br. 20 (claim 1); Spec. ¶ 1. The shielding apparatus includes a frame configured for installation on a substrate surrounding an electronic component to be shielded and a releasably attachable/detachable pickup member configured to allow the pickup member and the frame to be picked up by pick and place equipment (e.g., suction nozzle, grippers, etc.). *Id.* ¶¶ 7, 25.

One embodiment is shown in Figures 6 and 9, which are reproduced below:

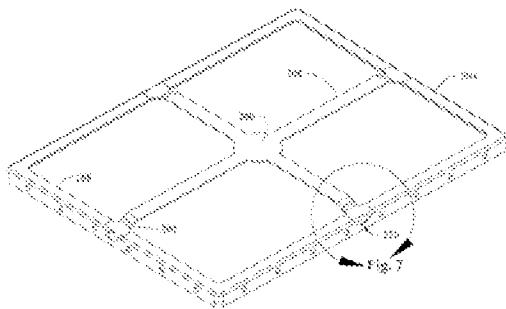


Fig. 6

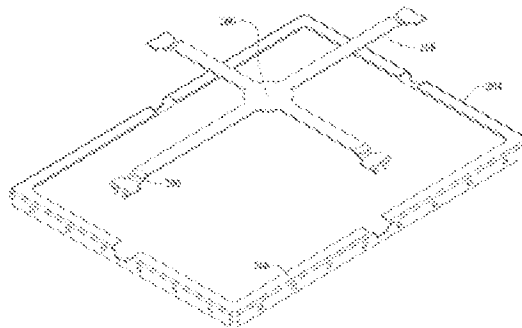


Fig. 9

Figure 6 shows a shielding apparatus, including frame 204 and pickup bridge 208, which is releasably attached to frame 204 by means of interlock 220. *Id.* ¶¶ 18, 63. Pickup bridge 208 includes pickup area 260 and end portions 290, which that are bent or angled upwardly such that the pickup area is higher than the upper surface of the frame's flange 268. *Id.* ¶ 64. Figure 9 shows the shielding apparatus of Figure 6 after removal or detachment of the pickup bridge from the frame. *Id.* ¶ 21.

Claim 1 is illustrative of the subject matter on appeal and is reproduced below from Appellant's Appendix 1:

1. A shielding apparatus comprising:

a frame; and

a pickup member integrally formed with and having a monolithic construction with the frame, the pickup member releasably attached to the frame to allow the frame and the releasably attached pickup member to be picked up by the pickup member and placed on the substrate;

wherein the pickup member includes a pickup area and arms extending outwardly from the pickup area and releasably attachable to corresponding sidewalls of the frame such that the pickup member spans across an open top of the frame and such that the pickup area is higher than an upper surface of the frame whereby greater clearance is provided for electronic components;

whereby the pickup member is detachable and completely separable from the frame, without deforming the frame, after the frame is installed on the substrate such that the frame remains installed on the substrate without the pickup member.

App. Br. 20.

#### *References*

Davidson	US 5,895,884	Apr. 20, 1999
English et al.	US 7,488,902 B2	Feb. 10, 2009 ("English")
Crotty, Jr.	US 7,504,592 B1	Mar. 17, 2009 ("Crotty")
Fukutomo et al.	JP 2008-034713	Feb. 14, 2008 ("Fujitsu"). <sup>3</sup>

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<sup>3</sup> Fujitsu Ltd. is the assignee of JP 2008-034713. We cite to an English machine translation made of record May 8, 2014.

*Rejections*

The Examiner maintains the following rejections under 35 U.S.C. § 103(a):

1. Claims 1–8, 10–18, and 20–23 as unpatentable over English, Crotty, and Fujitsu. Final Action 2–14.
2. Claims 9 and 19 as unpatentable over English, Crotty, Fujitsu, and Davidson. *Id.* at 15–16.
3. Claims 24 and 25 as unpatentable over English, Crotty, and Davidson. *Id.* at 16–18.

ANALYSIS

Appellant does not separately argue the patentability of dependent claims 3–6, 10, 12–15, 17, 18, and 20–23. App. Br. 4–18. In accordance with 37 C.F.R. § 41.37(c)(1)(iv), claims 3–6, 10, 12–15, 17, 18, and 20–23 will stand or fall together with their respective parent claims 1 and 11.

Upon consideration of the evidence presented in this Appeal and each of Appellant’s contentions, we are not persuaded that Appellant identifies reversible error, and we find that a preponderance of evidence supports the Examiner’s conclusion that the subject matter of Appellant’s claims is unpatentable over the applied prior art. We sustain the rejections of the appealed claims based on the Examiner’s findings of fact, conclusions of law, and rebuttals to Appellant’s arguments, as expressed in the Final Action and the Answer. We add the following primarily for emphasis.

*Claims 1 and 11*

The Examiner finds that English discloses a shielding apparatus comprising a frame and a pickup member having a monolithic construction,

but does not teach that the pickup member is releasably attached to the frame and does not teach that the pickup area is higher than an upper surface of the frame. Final Action 2–3.

The Examiner finds that Crotty discloses a shielding apparatus, including a cover that is releasably attachable to a frame by means of an interlock. *Id.* at 3. The Examiner finds that it would have been obvious to modify the shielding apparatus of English to include an interlock as suggested by Crotty “such that the arms of the pickup member are releasably attached to the sidewalls of the frame, so that the pickup member can be removed and then reattached, in order to provide access to electrical components beneath the pickup member.” *Id.* at 3.

The Examiner finds that Fujitsu discloses a shielding apparatus including a pickup member having arms that extend outwardly from a pickup area and are releasably attachable to a frame, such that the pickup area is higher than an upper surface of the frame whereby greater clearance is provided for electronic components. *Id.* at 3–4. The Examiner finds that it would have been obvious to modify the shielding apparatus of English and Crotty to include the pickup member features, as taught by Fujitsu “in order to reduce the height of the frame while preventing the pickup member from contacting the electronic components.” *Id.* at 4.

Appellant argues that the cited references fail to teach all the features of the claims and that, even if prima facie obviousness has been shown, it is rebutted by Appellant’s arguments and evidence. App. Br. 6–7. For the reasons discussed below, we are not persuaded that Appellant identifies error in the Examiner’s findings and conclusions.

Appellant argues that Crotty's detachable cover differs from the claimed pickup member, which is not a cover. App. Br. 8–9. This argument does not identify error in the Examiner's finding that Crotty teaches an interlock and that it would have been obvious to modify English's shielding apparatus with Crotty's interlock. Appellant fails to provide convincing argument or evidence that an interlock for releasably attaching two parts of an EMI shield (a cover and a frame) would be viewed by a person of ordinary skill in the art as inapplicable for providing releasable attachment of two other parts of an EMI shield (a pickup member and a frame). Appellant does not dispute the Examiner's finding that a releasably attachable pickup member was known in the art. Final Action 3–4; Fujitsu ¶¶ 39, 41, 42, Figs. 13–15 (disclosing pickup member 41 that is “freely attachable/detachable” to/from frame 25).

Next, Appellant argues that English teaches away from a pickup member that is detachable and completely separable from the frame. App. Br. 9–10 (quoting English 5:44–51, 7:51–58). According to the quoted disclosures, English's pickup member contributes stiffening support to the frame and enables the frame to be handled by pick-and-place equipment. *Id.* Appellant does not, however, direct us to evidence showing that such stiffening support is needed after the frame is installed on a substrate and the pickup member is detached. According to Appellant's Specification, a detachable pickup member provides the same stiffening support as taught by English. *Compare* English, 5:44–51, *with* Spec. ¶ 48. Appellant's Specification thus demonstrates that the Examiner's proposed modification would not be contrary to English's intended purpose. Accordingly, Appellant's argument and evidence do not convince us that English teaches

away from a detachable pickup member. *Galderma Labs., L.P. v. Tolmar, Inc.*, 737 F.3d 731, 738 (Fed. Cir. 2013) (“A reference does not teach away, . . . if it merely expresses a general preference for an alternative invention but does not criticize, discredit, or otherwise discourage investigation into the invention claimed.”).

Next, Appellant challenges the Examiner’s rationale for combining English and Crotty, arguing that English’s shielding apparatus already includes means for providing access to electrical components beneath the pickup member and the Examiner’s proposed modification would merely add unnecessary manufacturing steps and cost. App. Br. 10 (quoting English, 5:60–64). Appellant does not, however, dispute the Examiner’s finding that English’s pickup member is disposed over the open surface of a frame and obstructs access to electronic components beneath the pickup member to some extent. Ans. 7–8 (citing English Fig. 2). Crotty teaches that a removable cover enables access to electrical components beneath the cover. Crotty 4:59–5:3. The Examiner is correct that this teaching would have provided a motivation to include a removability feature in the shielding apparatus of English. *Id.*; Final Action 3. Although English’s pickup member does not obstruct access to the same extent as Crotty’s cover, we find that a preponderance of the evidence supports the Examiner’s position that English’s shielding apparatus would nevertheless benefit from making the pickup member removable.

Next, Appellant argues that Crotty does not suggest modifying English’s pickup member to make it removable, but would have instead led a person of ordinary skill in the art to eliminate the central hub and use the cover as a pickup surface. Appellant’s argument is unconvincing. At best,



Appellant proposes an alternative way of combining the cited references. The existence of such an alternative does not persuade us that the Examiner's proposed modification lacks sufficient reasoning, rational underpinnings, or evidentiary support. *See Acco Brands Corp. v Fellowes, Inc.*, 813 F.3d 1361, 1367 (Fed. Cir. 2016) (“[E]ven if one possible obvious combination falls outside of the claims, it fails to undercut the fact that the other possible obvious combination lies within their scope.”).

In addition, Appellant argues that Crotty's single piece EMI shield having a cover that can be repeatedly removed and reattached would not be considered relevant in developing a two piece shield having a sacrificial pickup member that may be removed and discarded. App. Br. 11–12. Appellant submits the same argument in the form of an inventor declaration.<sup>4</sup> We are not persuaded by Appellant's argument and Declaration. Appellant's attempted distinction between “single piece” and “two piece” construction is not persuasive. App. Br. 12. Both Crotty and Appellant describe an EMI shield comprising two parts that are formed from a single piece of material. *Compare* Crotty 5:4–8, 5:43–45, *with* App. Br. 20 (claim 1). The fact that reattachment is not a required feature of Appellant's pickup member does not does not persuade us of error in the Examiner's findings and conclusion. A preponderance of the evidence supports the Examiner's finding that Crotty's interlock would have been a known and relevant feature for inclusion in an EMI shielding apparatus. *See, e.g.*, Crotty, Abstract, Fig. 4, 8:4–11. A preponderance of the evidence also supports the Examiner's finding that English's shielding apparatus would

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<sup>4</sup> Declaration of Paul W. Crotty, Jr., filed October 15, 2013 (“Crotty Decl.”).

benefit from inclusion of this feature, namely by increasing access to electrical components beneath the pickup member. Final Action 3; Ans. 5, 7–8; Crotty, 4:59–5:3. Furthermore, as noted by the Examiner (Final Action 7), the teachings of Fujitsu provide further support for modifying the pickup member of English to be removable. Fujitsu ¶¶ 39, 41, 43, Figs. 12–15 (pickup member 41 is “freely attachable/detachable” and is removed from frame 25 after the frame is soldered to a circuit board and before shield cover 24 is placed over the frame).

Appellant argues that Fujitsu’s frame and pickup member do not have a monolithic single-piece construction. App. Br. 9. That argument does not identify error in the Examiner’s rejection, which relies on English, not Fujitsu, to teach a monolithic single-piece construction for the frame and pickup member. Final Action 2 (citing English Fig. 14); *see also* English, 4:54–58, 5:4–7 (teaching integral, monolithic construction for frame 102, including upper surface (pickup member) 106); *id.* at Figs. 1 and 2.

Appellant additionally argues that Fujitsu is concerned with providing clearance when top plate 41 is bent or flexed downwardly by the force of pickup nozzle, “not with accommodating taller components.” App. Br. 9. Appellant’s argument is unconvincing. As the Examiner correctly finds (Final Action 4; Ans. 4), Fujitsu Figures 13 and 15 show that pickup area 41a of pickup member 41 is higher than an upper surface of frame 25 and also show clearance between pickup area 41a and electronic components 23. Fujitsu ¶ 42, Figs. 13, 15. Appellant relies on Fujitsu Figure 17 (App. Br. 9), but that figure shows a different embodiment than Fujitsu Figures 12–16, which are the basis for the Examiner’s findings. Final Action 4 (citing Fujitsu Figs. 13, 15); *compare* Fujitsu ¶¶ 38–47 (describing Figs. 12–16

including pickup member 41), *with* Fujitsu ¶¶ 48–56 (describing Figs. 17–20 showing an embodiment without a separate pickup member).

Appellant argues that “numerous advantages that may be realized by using the releasably attached/detachable pickup members.” App. Br. 13 (quoting Spec. ¶¶ 25, 30–48). Appellant does not, however, explain how the asserted advantages are unexpected or unpredictable. *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 416 (2007) (“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.”).

Lastly, Appellant argues that its EMI shields with releasably attached pickup members have been commercially successful and received positive industry recognition. App. Br. 19.

Appellant asserts that over one million units have been sold to at least five different customers (App. Br. 19; Crotty Decl. ¶ 9), but provides no hard evidence, e.g., sales data, to support those assertions. *In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996) (“the PTO must rely upon the applicant to provide hard evidence of commercial success”). Furthermore, the number of units sold and the number of customers, without an indication of whether they represent a substantial share of the relevant market, is at best only weak evidence of commercial success. *Id.* Furthermore, Appellant provides no evidence showing a nexus between sales of its products and the subject matter of the appealed claims. *Id.* (evidence of commercial success is relevant “only if there is proof that the sales were a direct result of the unique characteristics of the claimed invention—as opposed to other economic and commercial factors unrelated to the quality of the patented

subject matter”). Accordingly, we view Appellant’s evidence of commercial success as weak.

As support for its assertion of “positive industry recognition,” Appellant submits a magazine article discussing Appellant’s shields. App. Br. 19; Appendix B. The article is not true industry praise because it is co-authored by the inventor, Paul Crotty, Jr., and another engineer from Laird Technologies, Inc., the real party in interest. *Bayer Healthcare Pharm., Inc. v. Watson Pharm., Inc.*, 713 F.3d 1369, 1377 (Fed. Cir. 2013) (article authored by the first-named inventor is “self-referential commendation” and “fall[s] well short of demonstrating true industry praise”).

We therefore sustain the Examiner’s rejection of claims 1 and 11.

*Claims 2, 7, 8, and 16*

Regarding claims 2, 7, and 16, Appellant identifies one or more deficiencies of each of English, Crotty, and Fujitsu individually, but fails to identify error in the Examiner’s findings and conclusions based on the combined teachings of the references. *In re Young*, 927 F.2d 588, 591 (Fed. Cir. 1991) (“The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art.”); *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (“Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references.”).

Regarding claim 8, Appellant argues that Fujitsu Figure 15 shows portions 43 vertically straight up and down and not bent or angled upwardly, as shown in Appellant’s Figure 6. App. Br. 16–17. We agree with the Examiner, however, that the phrase, “end portions of the arms are bent or

angled upwardly,” as recited in claim 8, is broad enough to include portions that are bent or angled at an angle of 90 degrees. Our claim construction is supported by Appellant’s Specification, which does not define or limit the angle at which the end portions are bent or angled. Spec. ¶ 64, Fig. 6 (showing bent or upwardly angled portions 290).

We therefore sustain the Examiner’s rejection of claims 2, 7, 8, and 16.

*Claims 9 and 19*

Although Appellant argues claims 9 and 19 under a separate heading, Appellant merely argues that Davidson—the additional reference cited by the Examiner—does not remedy the asserted deficiencies in English, Crotty, and Fujitsu. App. Br. 17–18. Appellant’s argument is not persuasive to show error in the Examiner’s rejection, which relies on Davidson to teach a flangeless construction for the frame. Final Action 15.

We therefore sustain the Examiner’s rejection of claims 9 and 19.

*Claims 24 and 25*

Appellant fails to present a separate substantive argument regarding claims 24 and 25. App. Br. 18–19; *see In re Lovin*, 652 F.3d 1349, 1357 (Fed. Cir. 2011) (the Board reasonably interpreted 37 C.F.R. § 41.37 (c)(1)(vii) as requiring “more substantive arguments in an appeal brief than a mere recitation of the claim elements and a naked assertion that the corresponding elements were not found in the prior art”).

We therefore sustain the Examiner’s rejection of claims 24 and 25.

CONCLUSION OF LAW AND DECISION

The weight of the evidence supports the Examiner's conclusion of obviousness. Therefore, the § 103(a) rejections are sustained.

The decision of the Examiner rejecting claims 1–25 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1).

AFFIRMED